

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO**

**ANDREA PARIS, Individually and
Representative of the ESTATE OF
AUDREY H. CLIFTON, Deceased,**

Plaintiff,

vs.

Civ. No. 05-439 ACT/RLP

**FORD MOTOR COMPANY and
TRW Vehicle Safety Systems Inc.,**

Defendants.

MEMORANDUM OPINION AND ORDER

THIS MATTER comes before the Court upon Defendants TRW Vehicle Safety Systems Inc. and Ford Motor Company's ("Defendants") Joint Motion to Exclude Testimony of Y. King Liu pursuant to Fed. R. Evid. 702 [Doc. 56] and Defendants Joint Motion to Exclude Testimony of Anil Khadilkar pursuant to Fed. R. Evid. 702 [Doc. 57]. Upon review of the pleadings and being otherwise advised in the premises, the Court finds that Defendants' Motions are well-taken and will be granted.¹

Factual Background.

The following facts are undisputed. This is a products liability lawsuit. On or about May 5, 2001, Audrey Clifton ("Clifton") was a passenger in the front seat of a 1996 Mercury Marquis ("vehicle"). While traveling near Albuquerque, New Mexico, the driver fell asleep at the wheel and drove off the roadway. The vehicle veered off the road and rolled over at least three times. Clifton died from the injuries suffered in the single vehicle accident. Clifton was wearing her seat belt and her passenger-side air bag deployed.

On April 18, 2005, Plaintiff sued TRW alleging that the seat belt and airbag were defective and caused

¹Based on the experts' depositions and other documents before the Court, the Court finds that there is sufficient evidence to determine admissibility of both experts testimony and no hearing is required. *United States v. Murphy*, 457 F. Supp. 2d 1228 (D. Kan. 2006) citing *Goebel v. Denver & Rio Grande Western R.R. Co.*, 215 F.3d 1083, 1087 (10th Cir. 2000).

Clifton's death. [Doc. 1.] Plaintiff designated Y. King Liu ("Liu") as an expert in the field of biomechanics. As an expert in biomechanics, Liu was retained to testify on how Clifton sustained her injuries. Plaintiff designated Anil Khadilkar ("Khadilkar") as an expert in the field of vehicle occupant restraint systems. Khadilkar was retained to testify whether Clifton's seat belt performed properly during the accident. Defendants have moved to exclude the testimony of Liu and Khadilkar on the grounds that they are not qualified to offer expert testimony in this case and the methodologies used by both experts do not meet the standards of admissibility in *Daubert*.

Legal Standard.

Rule 702 of the Federal Rules of Evidence provides:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliability to the facts of this case.

The purpose of Rule 702 is to ensure that all expert testimony is both relevant and reliable. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993); *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999). The Court must perform a "gatekeeping inquiry...tied to the facts of a particular case" to determine if the proposed expert testimony is properly admitted. *Kumho Tire Co.*, 526 U.S. at 150 (internal quotation marks and citation omitted); *Smith v. Ingersoll-Rand Co.*, 214 F.3d 1235, 1243 (10th Cir. 2000).

The obligation under Fed. R. Evid. 702 requires a two-part inquiry. "[A] district court must [first] determine if the expert's proffered testimony...has 'a reliable basis in the knowledge and experience of his [or her] discipline.'" *Norris v. Baxter Healthcare Corp.*, 397 F.3d 878, 883 (10th Cir. 2005) (citations omitted). "Second, the district court must further inquire into whether proposed testimony is sufficiently 'relevant to the task at hand.'" *Id.* at 884. The requirements of *Daubert* assign trial judges a gatekeeper function that "entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and...whether that reasoning or methodology properly can be applied to the facts in issue." *Daubert*, 509

U.S. at 592-93.

Scientific knowledge requires more than guesswork; it must be founded in a body of known facts or a body of ideas inferred from such facts. *Norris*, 397 F.3d at 886 (noting that although “‘trained experts commonly extrapolate from existing data,’ neither *Daubert* nor the Federal Rules of Evidence ‘require[] a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert.’” (quoting *Gen. Elec. Corp. v. Joiner*, 522 U.S. 136, 146 (1997))). “[A]n expert’s conclusions are not immune from scrutiny...[and the] ‘court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.’” *Dodge v. Cotter*, 328 F.3d 1212, 1222 (10th Cir. 2003) (quoting *Gen. Elec. Corp. v. Joiner*, 522 U.S. at 146.).

An expert’s opinion is considered unreliable if it is based upon “mere ‘subjective belief or unsupported speculation.’” *Goebel*, 346 F.3d at 991 (10th Cir. 2003) (quoting *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993)). Educated guesses will not satisfy Rule 702. *Mitchell v. Gencorp Inc.*, 165 F.3d 778, 781 (10th Cir. 1999).

Liu.

Liu’s qualifications.

Liu has a Ph.D in Mechanics. He has been a professor since 1972 and biomechanics is one of his specialities. According to his curriculum vitae his most recent teaching and research experience is as Interim President & CEO at the California College of Podiatric Medicine. Response, Plaintiff’s Exh. 1. Liu defines biomechanics as “how the human body reacts to the application of forces to it.” Deposition of Liu of August 1, 2006 (“Depo. of Liu”) at 77. The following portions of his deposition are relevant to his qualifications to testify in this case:

Q. Have you undertaken any scientific study before being retained in this case of how injuries occur in vehicle accidents?

A. Specifically with respect to vehicle accidents the most of my work has been in the area of hyperextension, hyperflexion injuries or popularly called whiplash injuries.

Id. at 79.

Q. I take it that it is a fact in this case that in your entire career, you have never conducted a study or research using instrumented crash test dummies in a simulated automobile crash; it's that true?

A. Yes, it is true.

Id. at 82.

Q. Have you done any study of or research of victims in roll-over accidents to study their injuries and the cause of those injuries? And I'm saying separate and apart from any litigation-related assignment.

A. Specifically for roll-over studies, no.

Q. Have you done any studies of specifically looking at injuries to occupants of vehicles in frontal collisions?

A. In frontal collisions as a biostatistical study, no.

Id. at 97.

Q. I couldn't find in there that you had any publications on the biomechanics of individuals in automobile accidents.

A. Biomechanics of?

Q. Individuals in automobile accidents.

A. That's not a publishable material.

Q. It's not publishable how a body reacts in a roll-over accident?

A. Well, not in the journals that I, the archival journals that I like to submit my papers to.

Id. at 161.

Discussion.

As the party offering Liu's testimony as an expert, Plaintiff bears the burden of proving that his opinions are admissible. *In re: Breast Implant Litigation*, 11 F. Supp. 2d 1217, 1244 (D. Colo. 1998). Proof of an expert's general qualifications in a field are not sufficient. Rule 702 requires that the expert demonstrate his qualifications by virtue of his "knowledge, skill, experience, training, or education" before he will be allowed to testify to an opinion. Fed.R.Evid. 702. The record before the Court does not demonstrate that Liu has the knowledge, skill, experience, training or education to testify as an expert in biomechanics based on the facts of this case. Plaintiff's arguments that Liu has testified extensively in other cases and that he taught and studied in the area of biomechanics is not sufficient. Plaintiff did not demonstrate that Liu has testified in cases in which the issues were similar to the instant case or that he has taught, studied or conducted testing in areas that were

at least similar to the instant case. Furthermore, the evidence is that Liu has not published in any biomechanics journals that concern biomechanics of a passenger in a frontal or rollover impact automobile accident. Simply put, the record does not support that Liu's testimony will be helpful to the trier of fact in determining what caused Clifton's death.

Liu's methodology.

Liu views the two questions he is to answer in a automobile accident case as "what is the mechanism of injury to the occupant and two, absent the defect what would have been his or her injuries." Depo. of Liu at 135. To arrive at these answers, Liu used the "system identification algorithm." *Id.* at 138. Liu explained this method as follows:

A. There's a principle in physics called Occam's razor that says the simplest explanation for something is usually the correct one. The systems identification scheme essentially takes that and says we know something about the input, we know something about the output, but there are lots of unknowns in the output or in the input. But the model, or in this case the theoretical model fits the input and output the best is usually the correct one.

Id. at 139.

A. Input is the vehicle deformations or the lack of certain classic marks and the statements of the witnesses or people who first came on the scene...in terms of the output, in this case the output are the injuries to the occupant...and the nature or lack of the restraining function. And that unfortunately is all we have in this particular case.

Id. at 140.

When asked what biomechanical principles he applied in this case, Liu answered.

A. As I said earlier already, I have some input information, I have some output information, and put the two together into the simplest model that will fit both the sides. That's my biomechanics. If you want to call it, it's called system identification in biomechanics.

Id. at 187.

Based on this Liu opines that "there was a malfunction of the restraining system." *Id.* at 140. Facts relied on were Clifton's injuries to her face, head, neck, thorax, abdomen, and lower extremities. *Id.* at 150-51. Liu also relied on the fact there were no seat belt marks on Clifton's torso.

When asked about his methodology Liu testified as follows:

Q. Is one of the steps in a scientific method the formation of a hypothesis that can later be tested?

A. Not in a single accident, it cannot be tested. We are talking about research experiments. And here you're talking about the single case. In a single case you cannot apply the scientific method.. It's ludicrous.

Id. at 103.

Liu testified that Clifton most likely hit the windshield. When asked the basis of his opinion Liu stated:

A. I did not do any testing. And as I've already told you, you cannot use the cadavers for medical/legal cases. I did not put a surrogate in the vehicle because the vehicle was not in a condition to put a surrogate in, and that, which is what I would normally have done.

Id. at 107.

When asked why he had not done a computer simulation of the accident, Liu answered:

A. For one thing, it's expensive. Two, it was, quote, unquote a "short-fuse" case....[which] means things were coming up, depositions and trial and so on were coming up fast and that lots of things were not done. Accident reconstruction was not done, surrogate study was not done, but...I wish to do it, but I'm not the conductor of this case."

Id. at 122.

Discussion.

The Supreme Court has provided district courts with guidance related to what factors they should consider when evaluating the reliability of expert testimony. *Daubert* listed four nonexclusive factors that a trial court may consider in making its reliability assessment: (1) whether the theory at issue can be and has been tested; (2) whether the theory has been subjected to peer review and publication; (3) whether there is a known or potential rate of error and whether there are standards controlling the methodology's operation; and (4) whether the theory has been accepted in the relevant scientific community. *United States v. Rodriguez-Feliz*, 450 F.3d 1117, 1123 (10th Cir. 2006). Once reliability is established, however, it is still within the district court's discretion to determine whether expert testimony will be helpful to the trier of fact. *Id.*

Plaintiff has not established that Liu's system's identification methodology meets any of these factors.

Plaintiff has not established that this methodology is appropriate in this case or that it has been properly applied. Moreover, the record demonstrates that Liu's opinion is not reliable. Liu opines that the broken windshield occurred because of the "spooling out" of Clifton's seat belt which allowed her to hit the windshield. Depo. of Liu at 116. However, Liu cannot explain why it is not equally likely that the deployment of the passenger air bag was the force that broke the windshield. *Id.* at 112. Similarly, Liu opines that Clifton's facial injuries were caused by her hitting the windshield. *Id.* at 106. Liu also concedes that the airbag could have been the source of Clifton's facial injuries and acknowledges that he performed no testing to rule out the airbag as the cause of Clifton's facial injuries. *Id.* at 112. Liu also testified that Clifton's injuries were not caused by lateral movement in the vehicle without the benefit of any testing or scientific studies to support his opinion. *Id.* at 115-16.

Furthermore, though Liu has defined biomechanics as "how the body reacts to the application of forces to it," he admitted he does not know any of the forces present in this accident. Liu does not know how fast the vehicle was traveling; where Clifton's seat was positioned in relation to the windshield; or whether it is possible for a belted passenger to reach the windshield and create the injuries incurred by Clifton. *Id.* at 101, 108, 116, 118, 119 and 120.

Finally, Liu testified that tests and studies he wanted to do, such as accident reconstruction, computer simulation and surrogate study were not done. *Id.* at 122. *Truck ins. Exch. v. Magnetek, Inc.*, 360 F.3d 1206, 1213 (10th Cir. 2004) (district court properly struck an expert whose opinion did not meet investigation standards expert professed to adhere to).

Khadilkar.

Khadilkar's qualifications.

Plaintiff designated Khadilkar as an expert in the field of vehicle occupant restraint systems. Khadilkar was retained to determine whether Clifton's seat belt performed properly during the accident.

Khadilkar has a Ph.D. in Automotive Engineering and Vehicle Dynamics from Brno Technical University in Czechoslovakia. His resume states that in 1970 he was a post-doctoral scholar at UCLA. When

questioned about his qualifications in his deposition he stated he had never worked for an automotive component supplier. Deposition of Anil V. Khadilkar, Ph.D. of August 4, 2006 (“Depo. of Khadilkar”) at 84-85. Khadilkar further testified that he had never designed seat belt components such as the retractor, D-Ring, or buckles that are involved in this matter. *Id.* After 1994, Khadilkar has not conducted any testing of occupant restraint systems outside of a litigation context. *Id.* at 18. Furthermore, Khadilkar has never conducted any component-level testing for an automotive supplier. *Id.* at 25. Though Khadilkar has never designed an air bag, he worked on a testing team “doing really pioneering efforts in designing and testing prototype air bags even before they became production product.” *Id.* at 88.

Discussion.

As discussed above, an expert’s qualifications must assist the trier of fact with “a fact in issue.” Fed.R.Evid. 702. A design expert may not necessarily be qualified based only on general experience and education in a field. *Lifewise Master Funding*, 374 F.3d at 928. In response to Defendants’ arguments, Plaintiff cites to his “automotive engineering experience with seat belt and restraint system tests from 1995 to 2002.” Response at 2. Plaintiff also refers to Khadilkar’s “extensive publications,” but does not demonstrate that any of these “extensive publications” have any bearing on the issues in this case. Response, Exh. 2. Finally, Plaintiff asserts that Khadilkar has “testified in dozens of restraint cases and has never been disqualified in any case.” Response at 2. However, Plaintiff has not demonstrated that the issues in previous cases are similar to the issues in this matter. As previously discussed, an expert must be qualified to opine regarding the specific issues raised in this case. Plaintiff, to prove Khadilkar’s qualifications, simply cites to his “automotive engineering experience with seat belt and restraint system tests from 1995 to 2002.” *Id.* Plaintiff’s conclusory statements do not demonstrate, as required, that Khadilkar is qualified to testify about the issues in this case.

Khadilkar’s methodology.

Khadilkar offers three opinions in this matter. One is that the retractor on Clifton’s seat belt failed to lock properly as the vehicle rolled during the accident. This failure allowed excess seat belt webbing to spool

out. This excess webbing resulted in Clifton being insufficiently restrained and thus she was propelled forward into the vehicle's windshield causing her fatal injuries. Defendants' Motion, Exhibit B, Khadilkar's expert report. As to his third opinion, Khadilkar makes a vague reference that the vehicle's air bag is defective.

1. Retractor opinion.

As the basis of Khadilkar's opinion that the retractor failed to lock, Khadilkar states that five to six teeth on the retractor spool have "shiny" marks on them. Depo of Khadilkar at 149, 154. He looked at the 18 retractor teeth and testified that the "shiny" marks were caused by the failure to lock. There is no evidence in the record that "shiny" teeth were caused, more likely than not, by the retractor's failure. *Id.* at 169. There is no evidence in the record of any other cases, testing or studies to support Khadilkar's opinion.

When asked to identify what part of the retractor caused the alleged failure to lock, Khadilkar stated that it may have been a "sluggish spring mechanism on the lock pawl." *Id.* at 175. When asked again, Khadilkar stated:

A. Again, I have to take into account what I am seeing by way of the outcome as a result of that. So my surmise is – conclusion is that the lock pawl, which is guided by the pendulum or your g sensitive – there has been some kind of malfunction associated with whatever the speed of that webbing payout was in conjunction with the rollover situation. It brought out one particular combination of events which allowed this to happen, and then it just continued to happen.

Q. Is it your opinion that the pendulum malfunctioned in this case?

A. Well, it's a combination of these three or four events that I gave you.

Q. Well, how did the pendulum malfunction?

A. Well, again I have to mention that it depends on the input that was from the outside, the rollover, the weighty – if there was any kind of a slam down that happened. And again, those are the factors that I have to explain. But I do not know exactly what the sequence of events was that actually caused this to happen. *Id.* at 178

Q. Is this a design defect with respect to the retractor?

A. As I mentioned to you previously, I do not have any basis or enough information to call it, as opposed to design defect, a manufacturing defect.

Q. So you can't tell me now if it's a manufacturing defect or a design defect.

A. That's what I'm saying now.

Id. at 184.

Finally, when asked if there was a safer alternative design for the retractor, Khadilkar responded that "[a]s I sit here right now, I do not have a definite answer ready for you." *Id.* at 183.

2. Webbing opinion.

Khadilkar has testified that the excess webbing was caused by the failed retractor spool. Motion, Exhibit B, Khadilkar's Expert Report. In testifying to this opinion, Khadilkar acknowledged that Clifton was likely out of her proper seating position at the time of the accident and the after-market comfort clip found on Clifton's seat belt would "provide some slack in the belt probably." Depo. of Khadilkar at 58,59 and 126. Khadilkar also testified that he has not performed a surrogate study but that it would be beneficial. *Id.* at 138. He testified that webbing was a part of the "system malfunctioned" but he has not "exactly quantified the contribution of the webbing to the lack of the protection provided to the occupant." *Id.* at 92.

In further testifying about the webbing, Khadilkar was asked:

Q. Do you intend, Dr. Khadilkar, to testify that the subject restraint system was defective for any reason related to the design of the D-ring?

A. I think response is going to be somewhat similar to what I have for the webbing because webbing and D-ring – and I mention all these other components – they are part of the overall system. And in my opinion, when the performance of a restraint system is looked at, everyone of these components have to work hand in hand to provide the protection required. In specific comment about the D-ring, about the thickness of it, material, the slot, dimensions and everything, I don't have any specific comment at this particular stage. But as part of overall system webbing as well as D-ring, I want to leave it there.

Id. at 98.

Khadilkar relies on deductive reasoning as the basis of his opinion.

A ...So deductive logic is that if you have seat belt on and if all indications are that the frontal impact is not a very severe impact, which the restraint system is designed primarily to protect from frontal impact, even though we take the rollover into this particular vehicle into account which also is a – literally mild compared with many other ones that I have seen.

So all these factors, when they come in effect – If somebody's wearing a seat belt and the

severity of the accident, either in the frontal direction or in the rollover, direction, is not all that severe, the restraint system failed to provide the protection, which resulted in this fatal injury. So there is something lacking in the system. It malfunctioned.

Id. at 111-12.

3. Air bag opinion.

Khadilkar's report does not express any opinion about the air bag. However, during his deposition testimony he testified:

THE WITNESS: I do not have, as I sit here right now, definite answer. But I have my own doubts about timely deployment, whether it deployed in the correct fashion or not.

Id. at 50.

When further questioned on this issue Khadilkar testified:

A....And if that happened, the only way I can think of is it has to be either happen before the air bag deployed, if that is the scenario, where there was nothing there and seat belt didn't work and airbag did not deploy and the contact took place, or air bag deployed and deflated, and then it happened...So the answer your question right now, there is something amiss there, and I don't know, as I sit here right now, one way or the other.

Id. at 50-51.

Discussion.

Plaintiff has failed to demonstrate that Khadilkar's opinions are reliable under *Daubert* and Rule 702. "Regardless of the specific factors at issue, the purpose of the *Daubert* inquiry is always the same: '[t]o make certain that an expert, whether basing testimony upon professional studies or personal experience employed in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.'" *Hollander v. Sandoz Pharm. Corp.* 289 F.3d 1193, 1205-06 (10th Cir. 2002) (quoting *Kuhmo Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999)).

The methodology Khadilkar used in reaching his opinions is deductive logic. There is nothing in the record that demonstrates that deductive logic is used by engineers to arrive at opinions of the type stated by Khadilkar. Plaintiff has not shown that deductive logic meets any of the nonexclusive factors the court may

consider in making a reliability assessment. *Rodriquez-Feliz*, 450 F.3d at 1123. There is nothing in the record that deductive logic method “employed by the expert in reaching the conclusion is scientifically sound and that the opinion is based on facts which satisfy Rule 702's reliability requirements.” *Dodge v. Cutter*, 328 F.3d 1212, 1222 (10th Cir. 2003). Simply put, Khadilkar did not use a reliable methodology to form any of his opinions.

Plaintiff's reference to a list of papers is not helpful. Plaintiff has not shown that the papers listed are relevant to the issues in this case or support Khadlikar's methodology. For instance, Khadlikar claims that shiny teeth are evidence of skip lock. However, there is nothing in the record before the Court that evidence of “shiny teeth” for proving a skip lock is a methodology relied upon and recognized in the field.

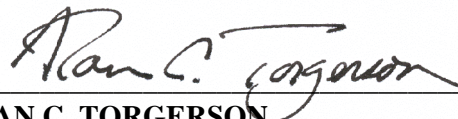
Moreover, Khadilkar himself testified that he did not have sufficient information needed to perform his analysis. He testified that he lacked an accident reconstruction, surrogate study and data about the seat position. Depo. of Khadlikar at 29, 138 and 147 In spite of this lack of information, Khadilkar formed opinions that are clearly not based “upon professional studies or personal experience” of experts in his field. *Hollander*, 289 F.3d at 1205-06. Such testimony lacks the required objectivity. *Mitchell v. Gencorp.*, 165 F.3d 778, 783 (10th Cir.1999) (quoting *Claar v. Burlington Northern R.R. Co.*, 29 F.3d 499, 503 (9th Cir. 1994)) (“[S]cientists whose conviction about the ultimate conclusion of their research is so firm that they are willing to aver under oath that it is correct prior to performing the necessary validating tests [may] properly be viewed by the district court as lacking the objectivity that is the hallmark of the scientific method.”)

Conclusion.

The Court concludes that Liu's and Khadilkar's testimony would not be helpful to the trier of fact. *Daubert*, 509 U.S. at 594-95. There is no evidence in the record that other experts in the industry use the methodologies relied on by Liu and Khadilkar. Nor are there any articles, papers or studies that validate Liu's and Khadilkar's approaches.

IT IS THEREFORE ORDERED that Defendants TRW Vehicle Safety Systems Inc.'s and Ford Motor's Company's Joint Motion to Exclude Testimony of Y. King Liu pursuant to Fed.R.Evid. 702 [Doc. 56]

and Defendants TRW Vehicle Safety Systems Inc. and Ford Motor Company's Joint Motion to Exclude Testimony of Anil Khadilkar pursuant to Fed. R. Evid 702 [Doc. 57] are granted. The Court will exclude the proposed testimony of Liu and Khadilkar at trial.

A handwritten signature in dark ink, reading "Alan C. Torgerson", is positioned above a horizontal line. The signature is fluid and cursive.

ALAN C. TORGERSON
UNITED STATES MAGISTRATE JUDGE,
PRESIDING